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ABSTRACT

More children are riding school buses longer distances than ever before, but this review of research on busing finds a surprising shortage of information on the subject, apart from safety figures and costs and efficiencies of the buses themselves. Historically, increased student transportation has been the by-product of school consolidation, but the cost of transportation is the most understudied issue in the consolidation debate. Rural children are most affected. They are the ones who most often have had their community schools closed, and they are the ones enduring the longest bus rides. In addition, rural school districts face higher transportation costs that may force them to choose whether to run buses or expand curriculum. Some research and much anecdotal evidence suggest that long bus rides have negative effects on family life, the ability of students to perform well in school, and students' ability to fully participate in the school experience. Additionally, no economic value is placed on children's time, nor is their time considered a significant issue in the debate over school closures, long bus rides, and the quality of education. More research on busing is needed, especially on the effects of long bus rides on children and families and on the correlations between long bus rides and dropout rates, student achievement, and parent participation. (Contains 37 notes.) (TD)

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# Long School Bus Rides:

## Their Effect on School Budgets, Family Life, and Student Achievement

by Beth Spence

*When testifying at a public hearing about long school bus rides, a Webster County, West Virginia, mother recounted a conversation she had with her daughter at the end of the young woman's four-year high school career.*

"She figured out that traveling to and from the high school for four years, she went more than the distance around the world two times," the mother said. The daughter's daily two-hour commute each way across rugged, mountainous rural roads took her from her home on the northern border of the county to the high school near the southern border.

"That doesn't count the times she came home and went back to ball games," the mother said. "That was just regular everyday."[1]

That "regular everyday" is a fact of life for thousands of public school students across the United States, especially those who live in rural communities. Not all students ride as long and as far and over as treacherous road conditions as the Webster County student, but more children than ever are riding school buses longer distances than ever before.[2]

Annually, 23.5 million children travel approximately 4.3 billion miles on 440,000 buses, according to the National Highway Transportation Safety Administration. Almost 60 percent of all school-age children across the country are transported by bus to and from school every day. But, despite the magnitude and cost of the school transportation system, a surprising shortage of information exists about the busing of children, apart from government safety figures. Very little has been done to examine the effect of this massive system on school budgets, instructional costs or, most important, the well-being of the children who spend so many hours each school day on those buses.[3]

### The Rising Cost of Transporting Students

How much does it cost to transport students to school by bus? How does one state's costs compare to another's? How does the cost of busing city students compare with that of busing suburban or rural children?

No one is completely sure because there is an almost shocking shortage of reliable national data comparing transportation costs among states. In 1989, Laurie Zeitlin calculated that the cost of providing pupil transportation services typically represents five to ten percent of a school district's budget. Citing her figures in a 1996 study, John W. Alspaugh pointed out that the cost had escalated rapidly in subsequent years, primarily because of higher and higher wages. Since Alspaugh's study, fuel oil costs have been subject to explosive increases and fluctuations, creating yet another factor that has wreaked havoc on schools' transportation budgets.[4]



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One of the few recent works that attempts to establish both the cost of transporting students and the effect on their education is *School Consolidation and Transportation Policy* by Kieran Killeen and John Sipple of Cornell University. Conducted for the Rural School and Community Trust, the study compares transportation costs among states and evaluates the relationship between rising transportation costs and instructional expenditures. Their work sheds new light on an issue that affects many rural families.[5]

Historically, increased student transportation has been the by-product of school consolidation, Killeen and Sipple say, but they suggest that the cost of transportation is the most understudied issue in the consolidation debate.

Since 1920, as the number of school districts has shrunk from 120,000 to less than 15,000, the percentage of students bused to school has grown from 10 percent to almost 60 percent. Although consolidation policy has been driven by a belief in the concept of *economies of scale*, transportation costs have escalated with the increasing school size.

In fact, transportation costs across the country have increased every year since 1929. While the number of children per school multiplied fivefold between 1920 and 1996, per-pupil transportation costs doubled. Until the 1950s, annual transportation costs across the country totaled less than $2 billion. During the next 20 years those costs doubled (adjusting figures for inflation); by 1980, they had doubled again, totaling $8 billion. While spending leveled off in the early 1980s, it began to rise again by 1985. As of the 1995-96 school year, U.S. school districts were spending more than $10 billion annually on transportation services. Citing these trends, Killeen and Sipple maintain that the growth in transportation costs consistently exceeds enrollment increases and the number of children riding buses.

The researchers noted particular problems in rural areas, where per-pupil transportation costs are double that in urban areas and where transportation's share of total spending for instruction is 77 percent higher than in urban areas. "In spite of the extensive consolidation across rural areas, transportation costs remain higher in rural areas than their suburban and urban counterparts," they write. "This fiscal observation is important in that it appears to further constrain opportunities to fund quality instruction in rural areas."[6]

In his study of West Virginia school systems that were experiencing budget deficits, Arnold Margolin found growing deficits in rural counties that had experienced extensive consolidation of schools, including Webster, Randolph, Nicholas, Braxton, and Ritchie.

Margolin said transportation was a major factor in those deficits in that the state's funding mechanism left counties with more than $20 million in "unfunded transportation costs" over a six-year period encompassing school years 1989-1990 to 1994-1995. He cited "sparsity of population" as one of the key factors in the deficits.[7]

Killeen and Sipple found that states in the southeast spend the least per pupil on student transportation. South Carolina, for example, spends between $20 and $114 per student in the average school district. Costs are much higher in the northeast and the northern half of the United States, particularly in Montana, North Dakota, New York, and Maine.

States in the northern half of the country also spend more, proportionately, on transportation. "In terms of all spending on school operations, states like Texas, California, South Carolina, Utah, Colorado and Nebraska devote the least on transportation. States like Louisiana, Missouri, Indiana, Kentucky, Maryland, Delaware, Rhode Island, and New Jersey spend the most."[8]

But state-by-state spending comparisons are problematic. In 1996, a situation in New Jersey illustrated the problem. The inability to find definitive information on busing costs led to a raging political debate and a state investigation into charges that the state's school bus contractors conspired to drive up transportation costs.[9]

The debate grew out of a report by a consulting company that recommended changes in the state's formula for funding transportation. The report put

New Jersey's average per-pupil transportation cost at $961, significantly higher than costs in 12 neighboring states. The problem was that the numbers used in the report were taken from a California trade magazine, whose editor said he relied on states' school transportation officials for his numbers. The editor said he couldn't be sure his survey questions were answered consistently from state to state.

"It's very difficult to make those comparisons," says Karen Finkel, the executive director of the National School Transportation Association, which represents commercial school bus companies. "You have to compare apples to apples. I haven't seen any study where that's been done."[10]

Killeen and Sipple suggested that per-pupil transportation costs should be compared before and after school district consolidation, but they said there is no available national data on the subject.

In his examination of transportation issues in Australia, Mark Witham cited Philip McKenzie's study in the Wimmera region of Victoria, which suggests that transportation costs are not taken into account in school cost analyses. He also acknowledged J. Nunn's conclusion that staff savings provided by large schools may be outweighed by the costs of constructing new school facilities and transporting students greater distances.[11]

Killeen and Sipple point out that the new "rural school problems" created by consolidation include impersonal schools, reduced parental influence, and long bus rides for children. They maintain that the least studied of these is the cost of student transportation and how it relates to the provision of a quality instruction program.

The researchers conclude that economy of scale arguments have failed rural school districts in terms of transportation policy, as the cost of providing transportation services and the costs of bus ride time increase with consolidation.[12]

## A History of School Transportation

Children have been transported to school at public expense for more than a century, long before the first yellow school buses rolled off the assembly line. In 1869, Massachusetts passed the first law authorizing the expenditure of public funds to take children to and from school. Generally, farmers were paid to haul children to school in horse-drawn wagons or buggies.[13]

By 1919 pupil transportation at public expense was legal in all 48 states, driven by compulsory attendance laws and the closing of rural schools. When a large-scale school consolidation movement began nearly a century ago, the reasons cited were to reduce fiscal inefficiencies and increase curricular advantages for students in small, often one-room, schools. In the first two decades of the twentieth century, demand for student transportation increased dramatically as the consolidation movement gathered momentum.[14]

Killeen and Sipple report that the country had more than 125,000 school districts at the turn of the century. By 1938, the number was down to 119,000. Thereafter, school districts were consolidated at a rate of 13 percent per year until 1973. By 1975, there were just over 16,000 school districts in the United States. The average school size in 1930 was only 81. By 1967, the average student population was 433.[15]

In *School Size, School Climate, and Student Performance*, Kathleen Cotton reported that there were approximately 200,000 elementary and secondary schools in 1940. By 1990 the number of schools was down to 62,037, a decline of 69 percent, despite an increase of 70 percent in the U.S. population. With this consolidation came more and more busing.[16]

Killeen and Sipple found the post-World War II baby boom and the corresponding suburbanization of America as two key influences on educational organization during the twentieth century.

"The population shift and the population growth of the suburbs created the need to build new schools in formerly rural areas and contend with the emptied urban schools," they wrote, noting that these societal pressures impacted school districts generally between 1945 and 1965. They said that while consolidation began much earlier, it greatly accelerated during the 1950s and 1960s.[17]

"Busing began as the carrot to the school consolidation stick," wrote Belle Zars. "Transporting pupils was a concession to make school closure and district consolidation palatable. . . . The busing system became increasingly extensive and pervasive: The rides got longer and longer."[18]

Zars also noted that later in the twentieth century, busing children out of their neighborhoods became the mechanism to make possible racially integrated schools and later to achieve racial balance in public schools.

"Public school transportation has been approved of and sought after by parents for decades," Dan White wrote in 1971. "The quarrel over the use of busing comes when public school transportation is used to achieve desegregation. In the 1920s and 30s the growing demand for better educational opportunity was perhaps the basic force for the use of the school bus, just as it is today."[19]

But *New York Times* education writer Gene Maeroff wrote, "Busing for desegregation is still only a small part of all school busing. For millions of American children who live too far from any school to walk, the institution known as the neighborhood school is not and never has been a reality."[20]

## The Effect of Busing on Academic Achievement

In his 1970 study of urban children, Dan A. White found no significant statistical difference between the achievement of elementary students who were transported to achieve racial balance and the achievement of their classmates who did not ride buses to school. The study's subjects were fourth, fifth, and sixth graders in a large urban school. White compared achievement test scores, attendance, grades in each subject area, number of extracurricular activities, and peer acceptance. The only difference between the two groups was that students who rode buses participated in fewer extracurricular activities.

"The findings of this study do not support the degree of concern which some parents and educators have expressed about the effects of transportation on the urban student," White wrote. "This research does not support the contention that school work will suffer or that attendance will decrease as a result of busing." He added, "Transportation as such should not be condemned without further research into the effects of busing on the student."[21]

It also should be noted that students in White's study traveled on the school bus for a maximum of 45 minutes. Some students were on the bus for as little as 10 minutes.

In 1973, researchers Yao-Chi Lu and Luther Tweeten challenged White's findings. They found the study inconclusive because of the small sample and because factors such as socioeconomic status were not compared.[22]

In Lu and Tweeten's study, data comparing fourth-, eighth-, and eleventh-grade students from 27 Oklahoma school districts were used. Of the 4,920 students in the districts, 1,959 were being bused, but none were being bused to achieve racial balance. The researchers also constructed a socioeconomic index, through which they determined socioeconomic status to be the most important variable affecting student achievement.

They further found that if all other variables were held constant, each hour per day spent riding a bus could be predicted to reduce achievement scores by 2.6 points for fourth-grade students, 4.0 points for eighth-grade students, and .5 points for eleventh-grade students.

However, a 1997 study of Montana students by Robert J. Thibeault, Alan G. Zetler, and Alfred P. Wilson concluded that there was no evidence that riding buses up to 90 minutes a day affects the achievement of students. Zars suggests that the results of all the early studies of busing are tainted and that most research into busing stopped in the early 1970s because "no researcher wanted to wade into a situation where their work could be used indirectly to promote or quash school desegregation."[23]

Unable to locate data that addressed concerns about student achievement and long bus rides, Zars posed a series of questions on the subject: "What is the

impact of long bus rides (over 30 minutes each way) on children's success in school? Inside that question is a whole set of questions about whether children are tired at school when they ride a bus for a couple of hours, whether their ability to get their homework done is lessened; whether they can participate in important extracurriculars. . . . Recent research documents the importance of parents, especially in young children's school success, but we have no idea whether parents who live, for example, 80 miles from the elementary school are less able to participate in school activities and form a relationship with their child's teacher."[24]

Testimony from West Virginia public hearings on the matter suggests that Zars' concerns also are the complaints expressed by students who make lengthy bus trips each day. A young man who travels two hours each way to school testified that he and his classmates avoid higher-level classes because they don't have time to do the required homework.[25]

A parent who not long ago made the same trip herself said, "I graduated as a senior second in my class, and I avoided all the college prep classes. I went on to college and graduated. I was on the Dean's List. But you avoid those courses and a lot of it is just the homework. You get home in the evenings and get your chores done, you just didn't want any more homework than necessary."[26]

This kind of anecdotal information is missing from a majority of studies conducted about busing and student achievement, in which conclusions are derived from student grades and standardized test results. The young woman described above would not have been considered as having suffered from low achievement because of bus rides. But she states emphatically that she did not take the highest-level courses available to her simply because of the long bus rides.

## The Hidden Cost for Children and Families

Perhaps the least documented aspect of long bus rides is the effect on children and family life. Again, Zars poses questions: "School busing has come to be seen as a necessary component of schooling in rural areas. Hence the school day extends for nearly twelve hours for some children. What are the gains and losses to family life and well-being? What contributions do the students make and fail to make to the family economy?"[27]

Michael Fox maintains that busing students has become a costly and socially questionable activity. In a 1996 report in *Rural Educator*, Fox states, "Wages, fuel costs and maintenance have caused school boards to question the overall benefits of large, regional school systems. Parents and students have also questioned the effects of riding in a school bus for as long as six hours per day."[28]

Rural school children and rural school districts are harmed the most from increased bus time, according to Killeen and Sipple. "When two school districts merge or otherwise fuse their boundaries, the geographic center of that area also moves. The same is true when schools close or modify their attendance boundaries. Children living at the edges of the new boundary must travel further to attend their school because of the interplay between low population density and wider school attendance boundaries."[29]

Fox looked at the reorganization and consolidation of schools in Canada's Quebec Province, where he said some students had to board in communities closer to their schools, others had to travel across time zones, and a majority spent two to six hours a day on a school bus. His study of Canadian students involved selecting households according to distance in travel time from the school and measuring changes in the household as a result of the time children spent on school buses. Among his findings:[30]

- Time on the school bus is "empty time," which keeps students from engaging in other activities such as homework, television viewing, relaxation, employment, and sleep. (p. 24)
- As travel time increases, students are able to participate in fewer in-home and out-of-home activities. "Students living farther away from schools must selectively drop activities from their schedules to compensate for the long bus rides. This is detrimental to their lifestyles as some may exclude such activities as recreation, social or homework activities." (p. 25)

- When travel time exceeds 30 minutes, it has a greater effect on the routines of both students and parents. "Therefore, as travel time increases, the household members all exhibited a marked drop in the quantities of activities that they pursue." (p. 25)
- As travel time increases, parents and students are less satisfied with the education system. Students "suggest that the time devoted to the travel constraint causes fatigue, so that they are not as attentive in school, nor are they as willing to put the required time and effort into their homework assignments. . . . Many parents questioned the need to have students travel up to five hours on a school bus so they can receive five hours of educational services." (pp. 25-26)

When she examined the transportation issue in *Long Rides, Tough Hides: Enduring Long School Bus Rides*, Belle Zars found every school administrator and transportation coordinator she spoke with sympathetic about the financial and human cost of the transportation system. Yet not one had examined the effects of long bus rides on children and families or the correlation between long bus rides and drop-out rates, student achievement, or parent participation.

"At the state level, with millions of dollars every year being spent to bus children, one would suppose that someone would look into the consequences of such a massive outlay of resources," Zars wrote. "I have not yet found any state reports or documents that seriously consider the effects of busing on schools, children and families. Most of the states' efforts concentrate on costs and efficiency of buses alone."[31]

Zars' research provides rich anecdotal evidence of the strains placed on children and families by lengthy bus rides. She tells of a mother in Montana who leaves home at 6:30 a.m. and drives for nearly an hour to meet a school bus, where her older son begins an hour-and-a-half trip to the high school. The mother then goes back home to deliver her younger child to the local elementary school by 8:30 a.m. The process is repeated in the afternoon. While discussing the situation, the mother talks about exhausted children and the hardship on families for the lost time.

Zars also reports on high school students in Arizona who travel three hours each way to school and elementary students in Utah who travel four and a half hours a day. Nearly all the families in one Colorado community moved away when their school was closed, and children who once walked to school were forced to ride buses for nearly two hours each way.

Those hardships were echoed in *Long Bus Rides: Stealing the Joy of Childhood*, a report written for Challenge West Virginia. At a series of public hearings, West Virginia parents and students described children who were so tired they could not perform well in school, children who avoided high-level classes because they did not have the energy to do the required work, and children who did not have time for family life because of long bus rides.[32]

An example was a kindergarten student in rural Ritchie County, West Virginia, who gets up each school day at 5:30 a.m. An hour later she and her brother and sister (a second grader) board a school bus that arrives at the local elementary school about 30 minutes later. There, the brother gets off the bus and waits with a fellow student in the school cafeteria, without adult supervision, for another bus to take him to the middle school. The two sisters, however, cannot get off the bus because no teachers are on duty at the school when the bus arrives. They remain on the bus while it completes its route, winding around the Ritchie County backroads for another 20 to 25 minutes before finally arriving at school. In the afternoon, the girls wait in the school lunchroom for more than an hour after their classes are dismissed before they board a bus for a 45-minute ride home. Their mother says they are completely worn out when they finally get back home.

A high school student in rural Webster County said he leaves his home at 6:30 a.m. and doesn't return until after 5 p.m. He said the daily commute of at least two hours each way leaves him with no time for family life.

I leave a long time before my father goes to work," he said. "He doesn't get in until 11 o'clock so the only time I have with him is on weekends. If I want to do something, I normally have to leave a note for

my father to read when he gets in. So he reads the note while I'm in bed and returns the message. When I get up in the morning, I find out what he told me. We never really get to discuss it. There's not going to be any family value if you don't have any time to spend with your family."[33]

## The Value of Children's Time

In the West Virginia hearings, a number of parents and students tried to quantify the value of the time the children spent on school buses. A Webster County parent who had made the daily two-hour commute each way estimated that she had spent 32 percent of her time on a school bus.

"I think I had figured it out that the four years I was in high school, I was on the bus approximately 2,160 hours," she said. "If you break that down, I think it's 54 forty-hour work weeks. So anybody in the work force would have to work a whole year on that job to compensate for the time that I spent on the bus."[34]

A Preston County parent did some calculations based on the assumption that 500 of 1,600 students in his county spend at least two hours a day each way on school buses. "If each student who rides two hours or more is paid $5.50 per hour, that works out to $990 each year. With 500 students, that works out to $495,000—almost half a million bucks. Our children's time has got to be worth something."[35]

The work of Australian economist Mark Witham supports the notion that the Preston County parent is onto something. Witham devised a method of calculating the value of children's time that he believes school boards should consider when deciding whether to close or maintain a local school. The assumption that children's time has no economic value is rejected, and a methodology is advanced that estimates the implicit minimum value of students' travel time in the economic framework used for school closure.[36]

He determined the number of hours of "lost opportunity time" that children spend on the bus per year and divided it into the anticipated savings to a school system. In the system Witham examined, the total cost reduction per student hour was $2.92, which Witham says could be considered exploitation of children if it were a wage.

Witham also looks at and rejects the argument that school closings can be justified because curriculum offerings will be enhanced. "Preliminary results from case studies of four small rural schools, as well as data on South Australia government schools, show that costs are not reduced but redistributed by school closure . . . and the broader curriculum of larger schools benefits only a small percentage of students." Other research has yielded similar findings. David Monk, for example, has conducted several studies of high school curriculum and finds that the strength of the relationship between school size and curricular offerings diminishes as schools become larger.[37]

## Conclusion

At the dawn of the twenty-first century, more children than ever are riding school buses longer distances than ever before. Despite the tremendous impact this massive nationwide transportation system has on school budgets and children's lives, only a smattering of information exists about busing.

What we do know is that rural children are most affected. They are the ones who have most often had their community schools closed, and they are the ones who are enduring the longest bus rides. In addition, rural school districts face higher transportation costs that may force them to choose whether to run buses or expand curriculum.

Some research and much anecdotal evidence suggests that long bus rides have a negative effect on family life, on the ability of students to perform well in school, and on their ability to fully participate in the school experience. Additionally, the value of children's time is not considered a significant issue in the debate over school closures, long bus rides, and the quality of the education. More research is called for in this area—human stories as well as statistical data. Policy involving school closings and long bus rides, above all, should take into account the real-life experiences of real people—the children and families who are paying the highest price for current transportation and school consolidation decisions.

## Notes

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2. Kieran Killeen and John Sipple, *School Consolidation and Transportation Policy: An Empirical and Institutional Analysis*, 12-19 (working paper for Rural School and Community Trust, Randolph, VT, April 24, 2000). http://www.ruralchallengepolicy.org/Killeen_sipple.pdf (11 October 2000).

3. National Highway Transportation Safety Administration, *School Bus Safety: Safe Passage for America's Children*. Washington, DC, 1999. http://www.nhtsa.gov/people/injury/buses/schbus/schbussum.html (11 October 2000).

4. See John W. Alspaugh, "The Effects of Geographic and Management Factors on the Cost of Pupil Transportation," *Journal of Education Finance, 22*(2), 180-94.

5. Killeen and Sipple's working paper (see note 2 above) was written for the Rural School and Community Trust (originally founded as the Annenberg Rural Challenge). Visit the Trust's Web site at http://www.ruralchallenge.org for updates.

6. Killeen and Sipple, 2.

7. Arnold Margolin, *"Fragile: Education in the Balance," West Virginia County School Boards: Deficit Experience, Fiscal Years 1900-1995* (Charleston, WV: West Virginia Education Fund, 1996), 16, 24-27, 49-50. ERIC Document Reproduction Service No. ED 406 082.

8. Killeen and Sipple, 17.

9. See Caroline Hendrie, "Dearth of Reliable Data on Bus Costs Makes State Comparisons Tough," *Education Week*, 27 November, 1996.

10. Ibid.

11. Mark Witham, *The Economies of (Not) Closing Small Rural Schools*. Paper presented at a Ph.D. symposium for candidates and supervisors, A Focus on Rural Issues, Townsville, Queensland, Australia, July 1997. See pp. 1, 5, 7-10. ERIC Document Reproduction Service No. ED 415 036.

12. Killeen and Sipple, 2.

13. Nicolaus Mills, "Who's Being Taken for a Ride?" In *The Great School Bus Controversy*, edited by N. Mills (New York: Teachers College Press, 1973), 4-5.

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15. Ibid, 6-8.

16. Kathleen Cotton, *School Size, School Climate and Student Performance, School Improvement Research Series, Close-Up No. 20* (Portland, OR: Northwest Regional Educational Laboratory, 1996), 1.

17. Killeen and Sipple, 30.

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19. Dan A. White, "Does Busing Harm Elementary Pupils?" *Phi Delta Kappan* 4:192-93 (1971).

20. Gene Maeroff quoted in Nicolaus Mills, "Who's Being Taken for a Ride?" In *The Great School Bus Controversy*, edited by N. Mills (New York: Teachers College Press, 1973), 4-5.

21. White, 192-93.

22. Yao-Chi Lu and Luther Tweeten, "The Impact of Busing on Student Achievement," *Growth and Change 4* (44-46) (1973).

23. Robert J. Thibeault, Alan G. Zetler, and Alfred P. Wilson, "The Achievement of Bus Transported Pupils," *Journal of Teaching and Learning* 2(3), 17-22 (1997); Zars, p. 2.

24. Zars, 6.

25. Spence, 7.

26. Ibid.

27. Zars, 6.

28. Michael Fox, "Rural School Transportation as a Daily Constraint in Students' Lives," *Rural Educator 17*(2): 22 (1996).

29. Killeen and Sipple, 11.

30. See Fox.

31. Zars, 4.

32. See Spence.

33. Spence, 5.

34. Ibid, 8

35. Ibid.

36. Witham, 2.

37. Witham, 7-10. Also see David H. Monk and E. J. Haller, "Predictors of High School Academic Course Offerings: The Role of School Size," *American Education Research Journal 30*(1): 3-21 (1993); also David H. Monk, "Secondary School Enrollment and Curricular Comprehensiveness," *Economics of Education Review 6*(2): 137-150 (1987).

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